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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/124,805
Filing Date: July 29, 1998
Appellant(s): LAMPING ET AL.

Warren S. Wolfeld
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/4/2005 appealing from the Office action mailed 10/6/2004 and 6/8/2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,619,632	**Lamping**	**04-1997**

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Lamping et al. (US Patent No. 5,619,632).

Re claim 17, Lamping teaches A) a method of laying out a node-link structure in space with negative curvature (col. 16, lines 45-63: col. 25, lines 52-62, Fig. 15, 17 and 21). In the specification of the application, page 11 and lines 3-7, the inventors claim the space with negative curvature as a space in which parallel lines diverge...there are multiple other straight lines parallel to the given straight line. An example of a space with negative curvature is hyperbolic n-space. Lamping teaches a hyperbolic layout space with a negative curvature when he discloses placing node features in a hyperbolic space with negative curvature. Lamping further teaches elsewhere representation includes link features that are lines representing links between nodes in a node-link structure and node features, some of which are rectangles with characters in them but others of which are intersections or ends lines as in figures 14-16. B) obtaining nearby relationship data for an element in the structure, the nearby relationship data indicating information about nearby node-link relationships, the nearby relationship data

excluding relationship with at least one element of the node-link structure (col. 17, line-20 to col. 18, line 50; Figs. 6-7).

In other words, Lamping teaches a transformed position for each node in the node-link structure including those that are treated as too near the edge. He discloses obtains layout data indicating a position in a layout space for each node in a node-link structure. The layout space can, for example, be **a hyperbolic plane**. He teaches initializing a current transformation that can be performed on the layout data to obtain transformed positions. The initial current transformation could, for example, be a null transformation that does not change the positions of the nodes in the layout space. His system then performs the current transformation on the layout data to obtain transformed data indicating transformed positions for each node;

C) based on only the nearby relationship data, and not on the position of any other element in the structure, obtaining layout data indicating the element's position relative to a parent in the space with negative curvature (col. 21. line 11 to col. 25, line 23: col. 16. lines 45-63; col. 32, lines 19-35, col. 25, lines 52-62, col. 4. lines 44-50; Figs. 5-7 and 17).

Lamping teaches the step of **the lower level node features** that share a parent node feature having centers of area positioned with sufficiently similar spacing from the center of area of the parent node feature corresponds to the step of obtaining layout data indicating the element's position **relative to** a parent in the space. The area of positioning the nodes indicates the element's position. In addition, **the lower level nodes** having a parent node correspond to obtaining the nearby relationship. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. As for obtaining layout data based on the

nearby relationship, Lamping teaches a node-link structure to obtain layout data. He teaches the layout of the data when he indicates the position of the nodes in a data structure.

Lamping further teaches that *the layout space can, for example, be a hyperbolic plane or another appropriate space with negative curvature (col. 17, lines 30-35)*. Lamping teaches in Fig. 15 **a child node feature 570 whose descendants span a larger angle wherein the child node feature 570 <u>does not</u> include a root node feature 566**, a child node feature 572 whose descendants span a smaller angle, wherein the child node feature 570 also excludes all elements in the child node feature 572. In data structure, the parent and the child nodes (lower level nodes) are the nearest relationships between nodes. Therefore, the nearby relationship data such as the child node feature 570 having grandchildren does not include all elements of the node-link structure. Specifically, it does not include the grandchildren of the child node feature 572.

From Fig. 15 of the cited reference, the node feature 570 is placed in a hyperbolic plane with negative curvature and/or in a layout space with negative curvature, wherein Lamping teaches placing a node feature (or a node-link structure) in a layout space with negative curvature. Lamping clearly discloses obtaining layout data indicating a position in a layout space for each node in a node-link structure and the layout space can be hyperbolic mapping space (See Lamping-632 column 18, lines 8-15 wherein Lamping discloses the act in box 274 of Fig. 6 in which layout space is a hyperbolic plane with negative curvature. See also Lamping-632 column 21, lines 12-58 for a disk of radius 1.0 representing the Poincare model of the hyperbolic plane). Lamping also teaches that the orientation step can change the manner in which *orientation of*

child nodes in relation to their parent changes in response to a click call. For example, the act in box makes a call to DoNode for the next child with the child's handle and with the parent's position from the box. Thus, **a sibling node with a large number of descendants (i.e., nearby relationship data for a subject element in the structure)** has more room than a sibling with few descendants, so that root node feature had children with different nearest nodes spacing. Furthermore, each node at each lower level having a parent node at a next higher level to which the node is related through one link... (and) a node-link structure to obtain layout data, indicating positions for pads of the node-link structure in a **layout space such as the hyperbolic space with negative curvature**.

Moreover, Lamping teaches in Figs. 14-16 and 21 layout data indicating positions of parts of a node-link structure such as the child node feature 570 being placed in a layout space with negative curvature. In a further note, the layout data can, for example, include coordinates indicating positions in the layout space. The layout data indicate positions in the layout space for each of a set of nodes that form a branch. The layout data indicates, for nodes in a branch, positions in *a layout space with negative curvature*.

Finally, Lamping teaches in column 29, lines 40-55 variations of the invention in which the node-link data could define all web pages of a network within some limits using an appropriate pruning constraint and the layout application is implemented using hyperbolic geometry and layout in a hyperbolic plane. Lamping also discloses that the display region may be any other appropriately shaped display region such as an ellipse through an appropriate mapping from the hyperbolic plane and the region assigned to a node in a hyperbolic plane or other layout space could have a non-circular shape.

Re claims 18-20 and 41, Lamping disclose: the space with negative curvature is a hyperbolic space (col.17. lines 28-44, col. 16, lines 5332: col. 20, lines 20-52). Lamping teaches a negative curvature as a hyperbolic space when he discloses the layout space is a hyperbolic plane.

Re claims 21-23, 30-32, and 35, Lamping discloses the radii and angles for the set of children to obtain a position displacement and an angle displacement between the parent and the element (col. 23 and 24; Fig. 13).

Re claims 24, 33-34, and 36, Lamping discloses the nearby node-link relationships include only relationships among the parent and the parent's children and grandchildren (col. 25, lines 24-50: fin. 13).

Re claims 25 and 37-40, Lamping discloses the method is performed in each of a series of iterations (col. 19. lines 61-67: col. 20 and 21; fig. 12).

Re claims 26-27, the limitations of claims 26-27 are analyzed as discussed with respect to claim 17 above.

Re claims 29 and 42-, the limitations of claims 29 and 42-44 are identical to claim 17 above except for calculating element's position in the space with negative curvature and storing the positions for each element...(col. 23. line 56 to col. 24, line 65; col. 16, lines 25-62; figs. 13-21). Therefore, claims 29 and 42-44 are treated the same as discussed with respect to claim 17 above. Lamping teaches implementing by calculating a radial gap for the position of each node, then comparing it with a limit to determine whether it is a position too close to the unit disk's

perimeter. In preparation for a recursive call to DoNode, the system begins each iteration by setting the previous node feature's position to the position and by setting the previous position's radial gap to the radial gap calculated. These values are set locally within the iteration. Then, the system makes a call to DoNode for the next child with the child's handle and with the parent's position. On a further note, the system can access instruction data stored in memory and transfer the instruction data over network to processor so that processor can receive instruction data from network. Instruction data can then be stored in memory or elsewhere by processor, and can be executed.

(10) Response to Argument

In VII Argument, Appellant argues in essence with respect to the claim 17 that,

(A) "As mentioned in the Summary of Claimed Subject Matter Above, the claims cover methods for local relative layout of a node-link structure in a space with negative curvature."

In response to the argument in (A), the Appellant argues in essence with respect to claim 17 with regards to "local relative layout of a node-link structure". While the local relative layout requires a significant detail of description in the appellant's specification, it cannot be found as a claim limitation set forth in the independent claim 17.

In the VII Argument, the Appellant argued with respect to the claims 17 and 29 in substance:

(B) "But whereas the claims cover methods for laying out the elements into a layout space with negative curvature, the Examiner's rejections of these claims all rely on methods taught in the Lamping '632 patent for mapping elements already positioned in the layout space with negative curvature, into the display space, which is *flat*."

In response to the argument in (B), the appellant's display space is no different from the Lamping '632. From appellant's specification Page 15-18, appellant present the node-link representations on a display space in a displayed representation. Therefore, the appellant's argument of flat display space is irrelevant to the rejection set forth in the Final Office Action.

Moreover, in Appellants' specification, page 25, it is stated, walker routines 222 could map the tree into the unit disk" and "when the tree has been mapped, painter routines 224 can be called to paint the mapped tree in a display buffer". Appellant's invention does require a displayed representation in a display buffer and does require mapping from a layout space into the display space.

In the VII Argument, the Appellant argued with respect to the claims 17 in substance:

(C) "In Lamping '632, the layout method in layout space (the space with negative curvature) always starts with the root node of the node-link structure, and always lays out the entire node-link structure, and always uses the relationship of all elements of the node-link structure in obtaining each element's position in layout space."

The Examiner agrees with appellant that Lamping '632 teaches a layout space with negative curvature, rebuking much of the Appellant's arguments elsewhere. Appellant argues that Lamping '632 always lays out the entire node-link structure, however, this argument is irrelevant to the rejection set forth in the Office Action because Lamping '632 not only presents the root node, but also the child node. For example, in column 20, lines 27-60 of Lamping '632, the act in box 362 begins each iteration by obtaining, for the next child node, a position in the hyperbolic plane, a wedge, and a room bound. The act in box 362 uses the distance from box 354 and also uses techniques described in detail in the Layout Application. The room bound can be one-half the distance from the child's parent from box 354 or the radius of a circle in the wedge, whichever is smaller. Lamping '632 thus teaches the relative position of the child node from the parent node in the layout application wherein the act 362 only deals with the child node excluding the parent node.

Moreover, since appellant's claim 17 is broadly construed, the claim limitation of "a node-link structure" may not be necessarily interpreted as the entire node link structure of Lamping '632, it may be the node-link structure for a child node and all the descendants of the child node including the grandchildren nodes of the child node and all the descendant links from the child node. Even if the claim limitation of "a node-link structure" set forth in the claim 17 is interpreted as the entire node-link structure, the child node-link structure still meets the claim limitation of "nearby relationship data for a subject element in the structure."

On Page 17 of Argument, the Appellant argued with respect to the claim 17 in essence:

(D) "Therefore the method cited by the Examiner:

(1) is not a method of laying out a node-link structure in a space with negative curvature,

(2) never performs any step of 'obtaining layout data identifying the subject element's position in the space with a negative curvature',

(3) never performs any step of obtaining the subject element's position based on any 'relationship data', and

(4) does obtain position information based on the position of other elements in the space with negative curvature."

In response to arguments in (D), much of the disclosure in the invention by Lamping is identical to the cited reference of Lamping '632, the Appellants' arguments here are in fact against their own invention. In contrary to the Appellants' arguments, the Lamping '632 has taught the claim limitation. With respect to the specific items shown up in the arguments in (D), the Examiner wishes to address them in detail.

With regards to item (1), as pointed out earlier by the Examiner, the Appellant already admits that Lamping-632 has taught a layout space with negative curvature. Surprisingly enough, appellant contradicts with his statement by stating that the cited reference does not teach a method of laying out a node-link structure in a space with negative curvature.
With regards to item (2), the cited reference teaches obtaining layout data identifying the subject element's position such as a child node's position in the hyperbolic space with negative curvature. With regards to item (3), the cited reference teaches obtaining the child node's position based on the nearby relationship data (See for example column 20, lines 20-60). With

regards to the item (4), the cited reference teaches that obtaining the layout data identifying the child node 570's position is not based on the position of another child node 572 in the structure (See Fig. 15).

On Pages 18 and 24-26 of VII Argument, the Appellant argued with respect to the claims 19-24 and claims 31-36 in essence:

> (E) "Appellants, in their Response C, filed February 12, 2003, provided numerous points explaining why claims 18-25 should be patentable in their own right...However, neither of the two subsequent Office Actions appear to address any of Appellants' points."

In response to the arguments in (E), the Examiner has clearly quoted the relevant sections of the cited reference that teach the claim limitations set forth in these claims. For example, in column 20, lines 20-52, Lamping '632 has taught a wedge of the hyperbolic plane wherein the wedge is available for the descendants of the root node and the wedge is defined by a wedge angle and a direction and the wedge indicates an angular difference between an incoming link to the parent and an outgoing link from the parent to the element, for example, the wedge angle for a node 594 in Fig. 16 indicates the angular difference between the two links to the node 594.

With regards to the claim 20, Lamping '632 discloses in column 20, lines 20-60 both the distance (position displacement) and the wedge angle (angular displacement) data.

With regards to the claim 21, Lamping '632 discloses an interative method of laying out the grandchildren nodes in the layout space and thus counting the number of grandchildren for each of a set of children of the parent (See Figs. 8-9).

With regards to the claims 22-24, Lamping '632 discloses the radii and angles for the set of children to obtain a position displacement and an angle displacement between the parent and the children nodes (See column 20, lines 20-60).

In the Pages 22-23 of VII Argument, the Appellant argued with respect to the claim 29 in substance:

> (F) "As mentioned, whereas independent claim 17 focuses in primarily on the localness of the layout methods, representative independent claim 29 focuses in primarily on the relativeness of the positions stored for the elements in the layout space."

In response to the arguments in (F), the Examiner notes that, in column 20, lines 27-60 of Lamping '632, Lamping teaches the act in box 362 begins each iteration by obtaining, for the **next child node**, a position in the hyperbolic plane, a wedge, and a room bound. **The act in box 362 uses the distance from box 354** and also uses techniques described in detail in the Layout Application. The room bound can be one-half the distance from the child's parent from box 354 or the radius of a circle in the wedge, whichever is smaller. Lamping '632 thus teaches the relative position of the child node from the parent node in terms of the distance and in terms of the wedge angle and direction in the layout application wherein the act 362 only deals with the child node excluding the parent node. **Lamping '632 has taught a wedge of the hyperbolic plane wherein the wedge is available for the descendants of the root node and the wedge is defined by a wedge angle and a direction.**

Lamping '632 has also taugh the act in box 274 obtaining a transformation of the layout space that moves the start position to the end position (local, relative position) and if the layout space is a hyperbolic plane, the act in box 274 can be implemented in Lamping '250 (See column 18, lines 8-16) entitled "Layout of Node-Link Structures in Space with Negative Curvature".

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jin-Cheng Wang *Jin Cheng Wang*

Kee M. Tung
Primary Examiner

Conferees:

Kee Tung

Ulka Chauhan